FUSION

Team HackaThanos

DOMAIN

Healthcare

PROBLEM

Gases are everywhere, and they are always more in chemistry labs!

It is not very uncommon that we find students either out of curiosity or unintentionally go for chemical experiments that result in harmful and toxic gases being produced. For example, Carbon Monoxide (CO) and Nitrous Oxide (N2O) have Short Term Exposure Limits (STEL) of 15 minutes and Long Term Exposure Limits (LTEL) of 8 Hours.

And very few laboratories at educational level have the infrastructure and the ability to detect, identify and prevent any undesired consequences of toxins until it's too late.

DESCRIPTION

We have the knowledge of toxicity of gases and we have the sensors to precisely pick those toxic gases. What most of the educational institutions lack is the small scale integration of these two to create a safety system for laboratories.

In the fiscal year 2014-2015, a total number of 280 accident cases were reported, in which 241 students and 10 members of staff were injured, as reported by the Honk Kong Education City.

Fusion solves this problem.

Fusion is a system of sensors and monitors that continuously monitor the levels of toxic gases in the laboratory produced in real-time. It has an automatic alarm

system that activates as soon as any toxic gas reading crosses the safety limit. It minimizes the time gap between production and detection of an undesired gas and exponentially reduces the likability of an untoward incident.

Fusion can function for every day of the year with minimal to no human action required. It can detect odorless, colorless gases, something which the human senses miss. It can report an accident in lesser time than possible by manual detection.

REQUIREMENTS

- Gas Sensors
- Arduino Board
- Raspberry Pi
- Monitor

FUTURE PROSPECTS

Fusion can be designed to be used in open spaces as a standalone pollution meter. Fusion can be upgraded in the near future to automatically send text messages or calls to the concerned parties in the event of an anomaly.